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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,133	01/24/2002	Andrew Storm	52637-0033	1850

29989 7590 10/17/2005

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EXAMINER

LU, JIA

ART UNIT PAPER NUMBER

2634

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,133

Applicant(s)

STORM ET AL

Examiner

Jia W. Lu

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-12, 15-21 and 23-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 8-12, 14, 17-21, 23, 26-32, 35 and 36 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 15, 16, 24, 25, 33 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments filed on September 1, 2005 have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicants' arguments but firmly believes that the cited reference to reasonably and properly meet the claimed limitations.

Independent Claims 1, 10, and 19

- (1) *Applicants' argument* – There is no teaching or suggestion in Marchetto to use two different sets of equalizer coefficients with a single time domain equalizer and evaluate the relative performance of the time domain equalizer while operating with the two different sets of equalizer coefficients.

Examiner's response – In response to applicant's argument that the cited patent (US 5,513,215) does not teach or suggest those limitations of claim 1 "wherein updating the time domain equalizer includes determining a relative performance of the time domain equalizer operating with first and second sets of equalizer coefficients", patent '215 shows a receiver apparatus comprising first and second decision feedback equalizers each with its own set of estimation coefficients, and "most likely sequence estimation means responsive to a third set of estimation coefficients for selecting as the output of said apparatus that one of said of first and second equalized output signals that is most likely to correspond to the data transmitted to said radio receiver by a plurality of simulcast transmitters". In order for this process to select a "most likely" set of data, it is

implied that it must first determine a relative performance of the two different sets of coefficients. This is functionally equivalent to the limitation of claim 1 having one equalizer containing two sets of coefficients.

Claim Objections

1. Claims 5, 14 and 23 are objected to because of the following informalities: These claims are dependent on canceled claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-3, 5, 8-12, 14, 17-21, 23, 26-32, 35, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,834,109, and further in view of US patent 5,513,215.
 - a. Regarding claims 1, 10, 19, patent '109 discloses a communications receiver including a time domain equalizer (figure 2, element 212), a frequency domain equalizer (figure 2, element 214), and updating means to update both time and frequency domain equalizers based on

communication performance (figure 2, element 210). While patent '109 does not disclose a comparison of performance between two sets of equalizer coefficients, patent '215 describes a comparison of performance of a first and second set of equalizer coefficients as means for its update mechanism (column 27, lines 50- column 28, line 2). While '215 discloses the claimed invention except that the two different sets of equalizer coefficients are used in a two equalizers instead of one, the systems are functionally equivalent to each other. It would have been obvious to one ordinarily skilled in the art to use a comparison between two sets of equalizer coefficients in an equalizer update mechanism as described in patent '109 to determine the best suited coefficients for varying data.

- b. Regarding claim 2, 11 and 20, patent '109 does not disclose an update mechanism using the updating of coefficients in the equalizer. However, patent '215 describes a receiver that uses the updating of coefficients as a part of equalizer updating process (abstract, lines 11-17). It would have been obvious to one ordinarily skilled in the art to use the updating of coefficient as means for updating an equalizer as described in patent '109 to allow customization of equalizer properties.
- c. Regarding claim 3, 12 and 21, patent '109 does not disclose synchronization means in its equalizer update mechanism. However, patent '215 describes the use of pilot symbols as means for synchronization in its equalizer (abstract, lines 11-17). It would have been

obvious to one ordinarily skilled in the art to use synchronization as part of an equalizer update mechanism like one described in patent '109 to ensure accuracy and uniformity of data reception.

- a. Regarding claims 8, 17 and 26, patent '109 describes the receiver in a digital subscriber line configuration (column 1, line 42).
 - d. Regarding claims 9, 18 and 27, patent '109 describes the receiver as part of a discrete multitone system (column 7, lines 27-31).
3. Claims 5, 14 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,834,109 in view of US patent 5,513,215 as applied to claims 1, 10 and 19 above, further in view of US patent 6,418,558. Both patents '109 and '215 failed to teach that the operating of the equalization coefficients are determined by the signal to noise ratio; patent '558 describes in detail the use of signal-to-noise ratio in its equalizer adjustments (column 55, lines 38- 42). It would have been obvious to one ordinarily skilled in the art to use the signal to noise ratio as an equalization coefficient determining factor because the signal to noise ratio is an indicator to error signal.
4. Claims 28, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,834,109 in view of US patent 5,513,215, and further in view of US patent 6,418,558.
- e. Claim 28 inherits the limitation of claim 1 above. However, neither '109 or '215 explicitly describe its use in a computer-readable medium. Patent '558 describes an system including equalizers that is for data in a digital

computer medium (column 10, lines 42-53). It would be obvious to one ordinarily skilled in the art to place equalizers with updating mechanisms in a computer-readable medium because the incorporation of a computer into the system's operation allows for flexibility and efficiency in its implementation.

- f. Claim 35 inherits the limitation of claim 8 above.
 - g. Claim 36 inherits the limitation of claim 9 above.
5. Claims 29- 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,834,109 in view of US patent 6,418,558 as applied to claim 28 above, further in view of US patent 5,513,215.
- h. Claim 29 inherits the limitation of claim 2 above.
 - i. Claim 30 inherits the limitation of claim 3 above.
 - j. Claim 31 inherits the limitation of claim 4 above.
 - k. Claim 32 inherits the limitation of claim 5 above.

Allowable Subject Matter

6. Claims 6, 7, 15, 16, 24, 25, 33 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jia W. Lu whose telephone number is 571-272-6042. The examiner can normally be reached on Mon- Fri, 9:30AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jia Lu
Examiner



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